MALAYSIAN STANDARD

MS 1979:2015

Electrical installations of buildings - Code of practice
(First revision)

ICS: 29.020; 91.140.50

Descriptors: practices, electrical installations, buildings, residential houses, dwellings

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Committee representation

The Industry Standards Committee on Generation, Transmission and Distribution of Energy (ISC E) under whose authority this Malaysian Standard was developed, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysia Nuclear Power Corporation
Malaysian Association of Standards Users
Malaysian Cable Manufacturers Association
Malaysian Electrical Appliances and Distributors Association
Malaysian Green Technology Corporation
Persatuan Kontraktor Elektrikal dan Mekanikal Melayu Malaysia
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Sustainable Energy Development Authority Malaysia
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Malaya

The Technical Committee on Electrical Installation, Protection and Insulation Practice which supervised the development of this Malaysian Standard is managed by The Electrical and Electronics Association of Malaysia (TEEAM) in its capacity as an authorised Standards-Writing Organisation and consists of representatives from the following organisations:

Association of Consulting Engineers Malaysia
EITA Resources Berhad
G.H. Liew Engineering (1990) Sdn Bhd
Jabatan Bomba dan Penyelamat Malaysia
Jabatan Kerja Raya Malaysia
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM QAS International Sdn Bhd (Electrical and Electronic Testing Section)
Suruhanjaya Tenaga
Tenaga Nasional Berhad (Distribution Division)
Tenaga Nasional Berhad (Generation Division)
The Electrical and Electronics Association of Malaysia (Secretariat)
The Institution of Engineers, Malaysia
Time Era Sdn Bhd
Universiti Malaya

The Working Group on Electrical Installation of Buildings which developed this Malaysian Standard consists of representatives from the following organisations:

Abbaco Controls Sdn Bhd
Covis Sdn Bhd
Mektricon Sdn Bhd
The Electrical and Electronics Association of Malaysia (Secretariat)
The Institution of Engineers, Malaysia

Foreword

This Malaysian Standard was developed by the Working Group on Electrical Installation of Buildings under the authority of the Industry Standards Committee on Generation, Transmission and Distribution of Energy. Development of this Malaysian Standard was carried out by The Electrical and Electronics Association of Malaysia (TEEAM) which is the Standards - Writing Organisation (SWO) appointed by SIRIM Berhad to develop standards for electrical installation, protection and insulation practice.

Major modifications in this revision are as follows:

i) COP 01: Nominal voltages have been updated.

ii) COP 02A has been added to address compliance with regulatory requirements and electrical standards.

iii) COP 04: Basic protection is highlighted.

iv) COP 05: Additional requirements on protective earthings and equipotential bonding of equipment have been added.

v) COP 06: The term “earth fault” is used to replace the term “fault”; additional requirements on the use of overcurrent protective device (OPD) and residual current device (RCD) as well as the maximum disconnection time have been included.

vi) COP 07: Recommended value for the resistance of installation earth as well as the measurement method has been updated.

vii) Clause 4.3, protection against harmful effects, such as smoke and deleterious effects on adjacent equipment has been added into consideration.

viii) COP 08A has been added to include protection against burns.

ix) COP 09: Distance for out-of-reach has been specified.

x) COP 10A has been added to include requirements of thermal cut-off devices.

xi) COP 11A has been added to include overcurrent protection of neutral conductors.

xii) COP 11B has been added to include overcurrent protection of protective earthing and equipotential bonding conductors.

xiii) COP 12A has been added to allow neutral conductor reduction at the discretion of Professional Design Electrical Engineer.

xiv) COP 15: Overload trip current has been updated taking into account the types of circuit breakers.

xv) COP 16: The method of ascertaining minimum short circuit current rating has been revised.

xvi) COP 20: Installation recommendations to prevent eddy current effects have been updated.

Foreword *(continued)*

xvii) COP 21: Extra low voltage (ELV), signal and control, and instrumentation cables have been added into consideration.

xviii) COP 28: Requirement for mechanical protection has been added.

xix) COP 28A has been added to include requirements for cables not concealed inside walls, within partitions and similar.

xx) COP 31: Scope has been extended to cover other wet-equipment apart from water heater, and requirements for the power circuits have been updated.

xxi) COP 32A has been added to include requirements for terminations of circuits.

xxii) COP 32B has been added to include installation requirements of electrical equipment and accessories.

xxiii) COP 34: Consideration for load conductors in determining group reduction factor has been updated.

xxiv) COP 39: Material of wiring conductors has been restricted to electrical grade copper only.

xxv) COP 41: Allowable voltage drop has been revised.

xxvi) COP 43 has been removed.

xxvii) COP 44: Requirement for cables in final circuit to be continuous without any joint has been added.

xxviii) COP 45: Scope extended to cover walls, floors and other similar structures, and requirements for sealing have been updated.

xxix) COP 46: Requirements for multi-pole switching device have been updated.

xxx) COP 47: Scope has been extended to cover disconnector, links or similar.

xxxi) COP 48: Requirement has been updated to prohibit disconnection of protective earthing conductor.

xxxii) COP 49: Additional requirement for conductor passing through the magnetic circuit of an RCD has been included.

xxxiii) COP 54: Instances for 10 mA RCD installation has been updated.

xxxiv) COP 55: Elaboration on the installation location of RCD has been added.

xxxv) COP 56: Act and regulation governing the periodic test of RCD has been added.

xxxvi) COP 59: Additional requirements for the installation of SPD have been included.

xxxvii) COP 60 has been altered to cover the standards to be complied by SPD.

Foreword *(continued)*

xxxviii) COP 61: Minimum requirements of SPD ratings have been extended.

xxxix) COP 62 and COP 63 are no longer applicable.

xl) COP 64: Requirements for the earth connection of SPD have been updated.

xli) COP 65: Requirement for the operation of main incoming isolated has been added.

xlii) COP 68: Auto-reclosing circuit breaker and RCD are prohibited to prevent unintentional re-energising.

xliii) COP 69A has been added to cover sharing of and interconnection installation earthing systems of different buildings.

xliv) COP 73: Minimum cross-sectional - area of protective earthing conductor has been updated.

xlv) COP 74: Additional requirements on the inspection chamber and the connections have been included.

xlvi) COP 76: Cross reference to COP 73 has been made.

xlvii) COP 77: Requirements for minimum cross-sectional-area have been updated.

xlviii) COP 78 has been altered to cover change-over switch of a standby system or alternative system.

xlix) COP 79A has been added to include separate earthing for the standby ad alternative system.

l) COP 86: Cross reference to COP 86 has been made.

li) COP 88: Requirements for insulation resistance test has been updated taking into account different circuit nominal voltages and maximum conductor design operating temperature.

lii) COP 88A has been added to include socket polarity check on completed electrical installations.

liii) COP 88B has been added to include phase sequence check on final three phase circuits.

liv) COP 90: Requirements for labelling have been updated.

lv) COP 90A has been added to include requirement for colour coding of cable management system.

lvi) COP 90B has been added to include requirement for colour coding of cables and conductors.

lvii) COP 91: Requirements for as-built documentation have been updated.

Foreword *(concluded)*

lviii) Annex A has been added to provide an example basic singleline schematic diagram for single phase incoming distribution board.

lix) Annex B has added to provide an example basic singleline schematic diagram for three phase incoming distribution board.

This Malaysian Standard cancels and replaces MS 1979:2007, *Electrical installations of buildings - Code of practice.*

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.